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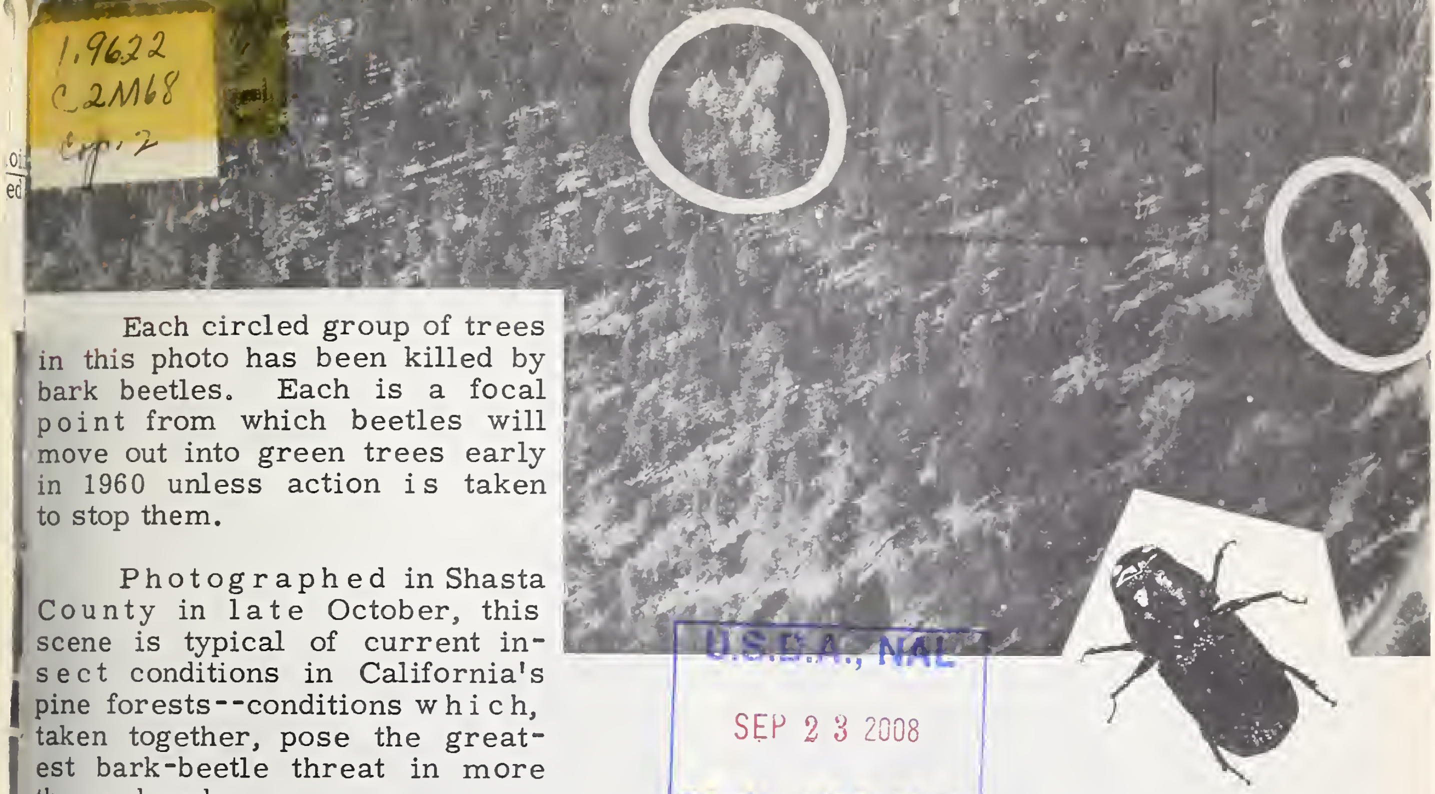

Each circled group of trees in this photo has been killed by bark beetles. Each is a focal point from which beetles will move out into green trees early in 1960 unless action is taken to stop them.

Photographed in Shasta County in late October, this scene is typical of current insect conditions in California's pine forests--conditions which, taken together, pose the greatest bark-beetle threat in more than a decade.

U.S.D.A., NAL
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CATALOGING PREP

BARK BEETLES THREATEN CALIFORNIA PINES

Late summer and fall surveys by Station entomologists, coupled with insect detection reports from cooperators, leave little doubt of the prospects for increased damage. The greatest threat is to some of California's finest timber: ponderosa and sugar pines in the westside mixed conifer belt. Ponderosa pine at lower elevations, particularly in fringe timber, already has been hard-hit by pine engravers and the western pine beetle. Sugar pines are being hard-hit by the mountain pine beetle and the same is true of certain lodgepole and Jeffrey pine forests in the high country, being attacked by the mountain pine beetle and the Jeffrey pine beetle, respectively. One bright spot in the picture is the eastside pine zone, where many beetle-susceptible trees have been logged in sanitation-salvage or harvest cuttings. Even these forests, however, are not completely out of danger.

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Why Are Infestations Increasing?

Since the heavy spring rains of 1958, much of California has been in the grip of unusually dry and warm weather. Rainfall last winter was well below normal, and temperatures, both last fall and this, have been unseasonably warm. The effect has been double-barreled, pointing up the advance warning issued by the Station last spring. Poor conditions for timber growth have made trees less resistant to beetle attacks. And the warm weather has enabled the beetles to prosper and continue to multiply when normally they would not.

Coincidentally, natural catastrophes seem to have conspired to favor the beetles. In northeastern California, tree damage caused by lightning was unusually heavy in the summer of 1958. In the southern Sierra, snow breakage from winter storms was severe. Forest fires injured many trees. Add the slash left from some early cuttings, and the result was a plentiful supply of breeding material for bark beetles.

What Is the Outlook?

From past experience we know that bark-beetle abundance fluctuates markedly. In some years the beetles seem to be almost completely absent, and tree-killing is insignificant. In other years, like this one, the beetles gather forces and become extremely destructive. Entomologists understand some of the conditions that trigger these cycles of abundance and scarcity well enough to recognize signs of impending trouble.

SALVAGE LOGGING

This fall the supply of beetles is plentiful—probably more so than is now apparent, for while many infested trees have been detected, others have gone unseen because they were still green. Weather conditions continue to favor the beetles rather than the trees. The disastrous summer and fall fires in the pine belt this year created additional breeding material, and the high winds with some of the fall fires brought down more green trees that beetles can breed in. Most of this material will be ripe for attack next spring when the overwintering beetles emerge.

What Can Be Done?

Bark-beetle control has always been a major problem in the management of California's pine forests. Most foresters know that management must be flexible enough to cope with outbreaks like the present ones. Bark beetles now ensconced in infested trees will stay there until spring. But forest managers must plan their beetle control strategy now if the killing of more green timber next year is to be prevented.

Salvage logging is one of the best means of disposing of infested timber if the trees are merchantable. It is effective, however, only if the infested logs are moved from the woods and into the mill before the beetles emerge. It has two beneficial effects: destruction of the beetles and the realization of cash values from the timber.

CHEMICAL SPRAYS

Not all infested trees are merchantable. And even with some that are, salvage logging may be impracticable, or impossible to accomplish in time to prevent the beetles from emerging. In these circumstances other methods of destroying the broods must be resorted to. Felling and burning, or the use of insecticidal sprays are effective. The choice of method depends on the insect involved and the nature of the infestation. The Station can supply information on this score.

Just as important as logging or treating infested trees is the disposal of trees not yet attacked but recently injured by fire, hit by lightning, or blown down by wind. These are the trees that the beetles will strike when they emerge next spring. Where these trees are concentrated, their beetle-breeding potential is formidable. Logging such material before beetles can breed in it will help keep an infestation of catastrophic proportions from developing. The time to start action is now.

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